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Editors:
WAN AB AZIZ WAN DAUD
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PREFACE

This book is a serial collection of teaching and learning (TnL) innovation from the competition of *Teaching Enhancement & Learning Innovation Carnival 2020* (eTeLIC' 20). It is the first-ever virtual carnival organised by the Centre for Academic Excellence and Development (CAED), Deputy Vice-Chancellor (Academic & International) Office, Universiti Malaysia Kelantan (UMK) on 21 September 2020 through an online platform, Google Meet. One hundred fourteen (114) entries from higher educational institutions and schools all over Malaysia had participated in the carnival. The carnival fits with the current situation that encourages remote teaching due to the COVID-19 crisis with the theme of "New Norm: Cultivating Online Learning". Educators are massively affected, and they critically need to learn, unlearn, and relearn to remain sustained and relevant in the inevitable paradigm shift to online learning. This book has 20 innovations, focusing on asynchronous online learning with constructive alignment that considers cluster determination following MQF 2.0. The book's contributors share their current Teaching and Learning (TnL) innovations, ideas, and best practices that are critically needed to be adopted and adapted, especially amid the COVID-19 pandemic. The uniqueness of each approach is that combining various creative and interactive tools and techniques prepared on the online selected platforms asynchronously. These asynchronous approaches can be applied across all disciplines, either in Science or Social Science. This book hopes to be a guidebook not limited to lecturers and other educators in different education levels.

Editors
Wan Ab Aziz Wan Daud
Mohamad Najmi Masri
Ahmad Zaki Amiruddin

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Chapter 8:Transforming 'Chalk and Talk' Teaching and Learning for an Undergraduate Mathematics Course during COVID-19 Outbreak

Subject Area

Undergraduate mathematics course for Faculty of Computer Science and Information Technology students, course code: TMF1874 Mathematics for Computing

Researchers

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Issues

'Chalk and talk' is commonly used as one of the methods to teach mathematics courses due to its simple strategy of demonstrating and solving mathematics problem on the whiteboard in front of the whole class. In UNIMAS, the Faculty of Computer Science and Information Technology lecturers have been using this method as a medium to teach first year undergraduate students undertaking TMF1874 Mathematics for Computing. However, when the COVID-19 pandemic situation escalated in March 2020, the method had to be changed to fit student's needs for online learning. University students were sent back home after Malaysian government announced the movement control order (MCO) in a bid to fight the virus (Hassan, 2020). At that time, there were 300 undergraduate students taking the course and they had already gone through half of the

syllabus through physical lecture and tutorial sessions. The common strategy was disrupted, and an ad-hoc plan was required to have a fully online teaching and learning for the remaining weeks of the semester. There were three challenges that need to be considered: How to ensure that all students can access the materials online? How to create online assessments for many students? What are the ways to communicate with the students to check on their progress?

Online Asynchronous and Synchronous Learning for Undergraduate Mathematics

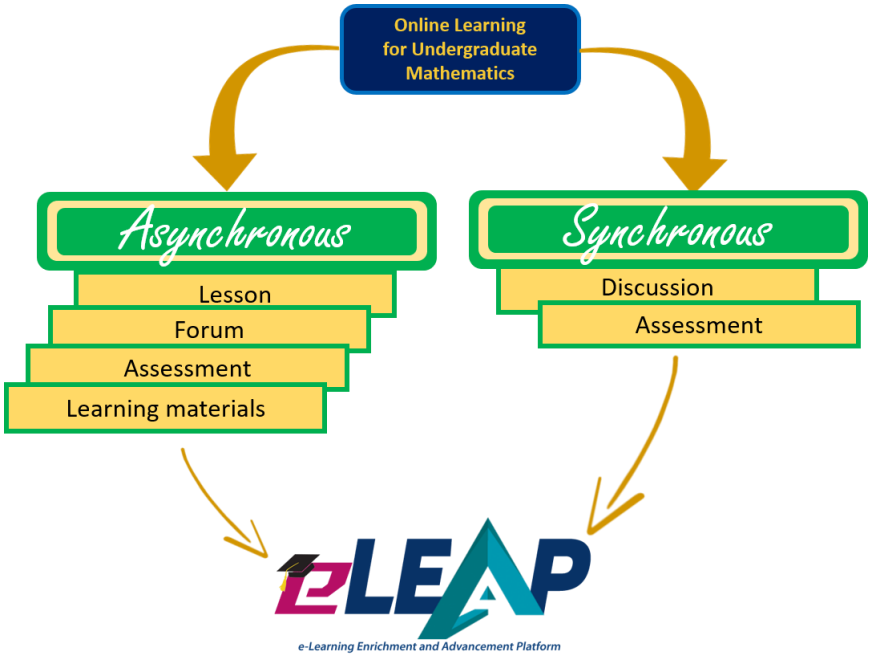

Figure 1. Online learning strategy to teach undergraduate mathematics course

We proposed an online asynchronous and synchronous learning for undergraduate mathematics to replace our "chalk and talk" strategy that was normally conducted in physical classroom. Figure 1 depicts the list of activities that were conducted during MCO and conditional MCO and all activities were carried out via UNIMAS learning management system (LMS) called, eLEAP, which is built on Moodle (www.moodle.org).

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e-learning, asynchronous online learning, synchronous online learning, undergraduate mathematics

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